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THE CHARTIST

BEATING THE COMING WATER SHORTAGE

An expanding world population, extreme weather patterns, and industrial pollution are making water a scarce commodity. Opportunities exist for businesses that can figure out how to keep the pipes flowing. *By Tara Moore / Graphics by Nicolas Rapp*

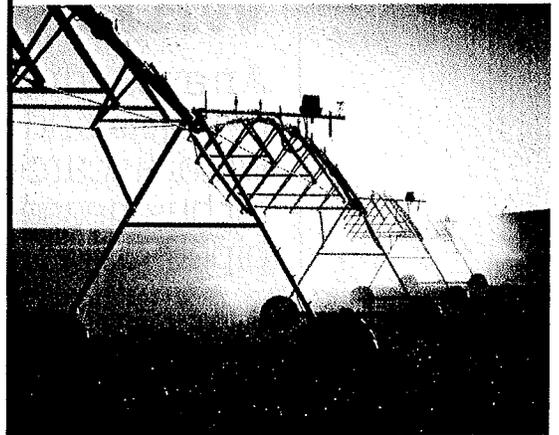


Upstream dams dried up the once-thriving Colorado River Delta in Mexico.





Agriculture consumes 71% of all water globally. An irrigated field in Spain.

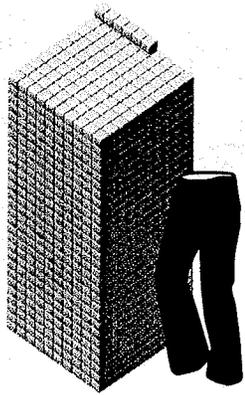


WATER, WATER, IN EVERYTHING ...

With all the bottled water we swig and showers we take, you'd think individuals consume the most water. Actually agriculture accounts for 71%, and industry 16%, of all water use globally. A pair of blue jeans requires 2,906 gallons, most of it from growing cotton. A car requires 104,000 gallons, most of it from the rubber. It takes 71 gallons of H₂O to produce a tall cup of coffee. Starbucks plans to cut its in-store water usage by 25% by 2015 with, for example, espresso machines that dispense less water.

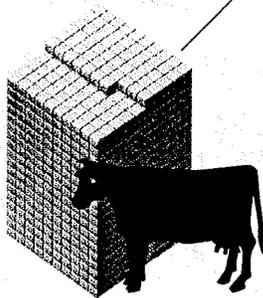
THE WATER NEEDED TO PRODUCE EVERYDAY ITEMS

Each cube represents one gallon of water, with the total reflecting the amount used in various steps of the production chain.



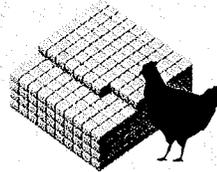
A PAIR OF
JEANS

2,906 GALLONS



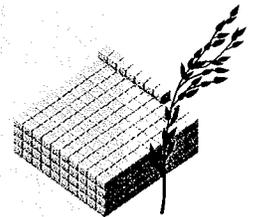
A POUND OF
BEEF

1,857 GALLONS



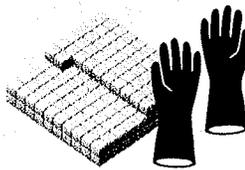
A POUND OF
CHICKEN

467 GALLONS



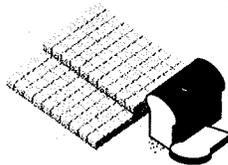
A POUND OF
RICE

407 GALLONS



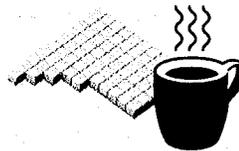
A PAIR OF NATURAL
RUBBER GLOVES

252 GALLONS



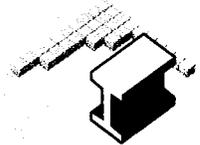
A POUND OF
WHEAT BREAD

160 GALLONS



A CUP OF
COFFEE (8 OZ.)

71 GALLONS



A POUND OF
STEEL

31 GALLONS

PRICE OF TAP WATER (100 gallons):

Buenos Aires \$0.01

Mumbai \$0.04

St.

TOO MANY PEOPLE, TOO LITTLE WATER

THE YELLOW AREAS ON THE MAP SHOW WHERE WATER DEMAND OUTSTRIPS SUPPLY.

Texas is hit with a record drought. Some 1 million Mexico City residents rely solely on truck deliveries for clean water. In the Horn of Africa, more than 13 million people are suffering from the worst drought in 60 years. According to the World Water Council, 1.1 billion people lack access to clean drinking water.

The good news is that long-term solutions exist for problems like these. Industry is developing superfine filters to clean even the dirtiest water—today 20% of Singapore's drinking water comes from processed sewage. In China the government has partnered with local companies to construct 1,816 miles of aqueduct to move water from rivers in the south to the parched northeast. Global water companies like Veolia, Suez, and ITT are partnering with municipalities to manage water. In Tampa, Veolia has built a new plant that brings drinking water to 2.4 million people.

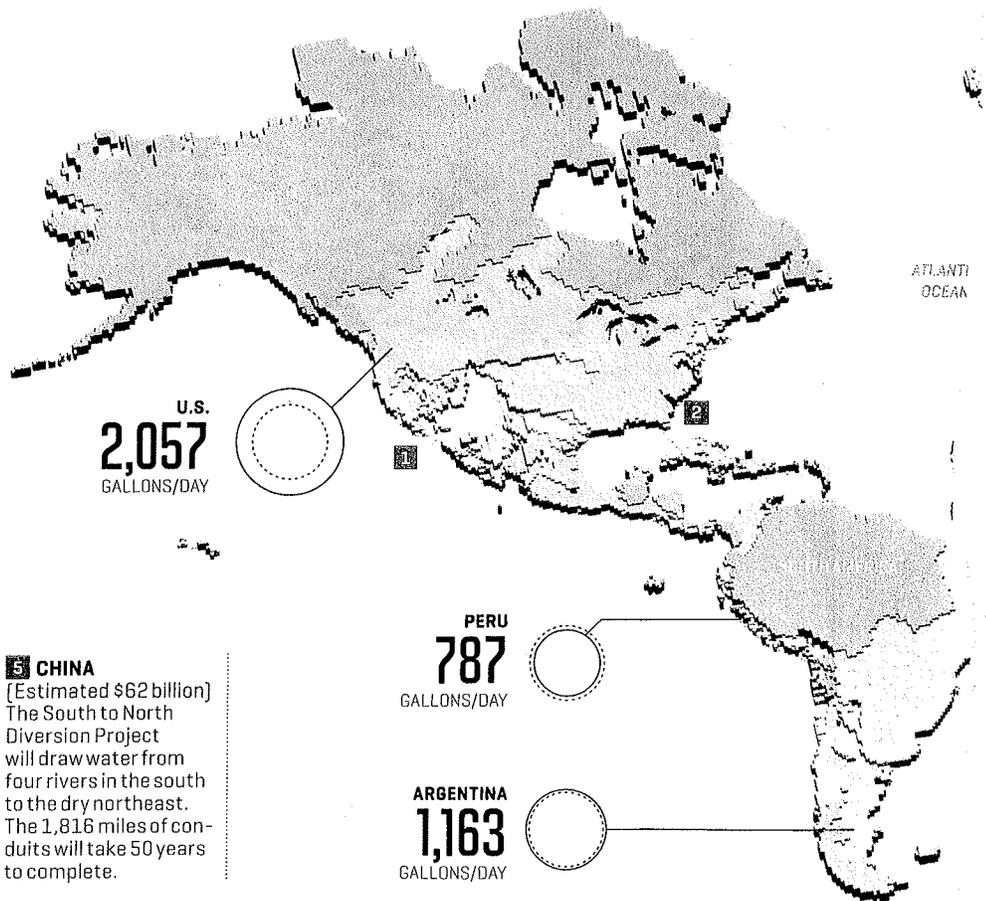
Gentlemen, start your water pumps.

1 U.S. (Project cost: \$700 million)
The Carlsbad Desalination Project, still going through the approval process, will supply 8% of San Diego County's drinking water by 2014.

2 U.S. (\$210 million)
The utility Tampa Bay Water hired Veolia to build a treatment plant that provides 120 million gallons per day of H₂O to 2.4 million people. The just-opened facility serves a population that traditionally relied on well water.

KAZAKHSTAN/ UZBEKISTAN (\$86 million)
In 2005 the government and the World Bank built a dam to raise water levels in the northern Aral Sea. Now they are working to bring back fisheries and local agriculture.

4 INDIA (\$128 million)
The Karnataka Watershed Development Project helps raise water tables, bring degraded lands under cultivation, and enable farmers to diversify into higher-value crops and raise agricultural productivity.



Shanghai \$0.07

Mexico City \$0.13

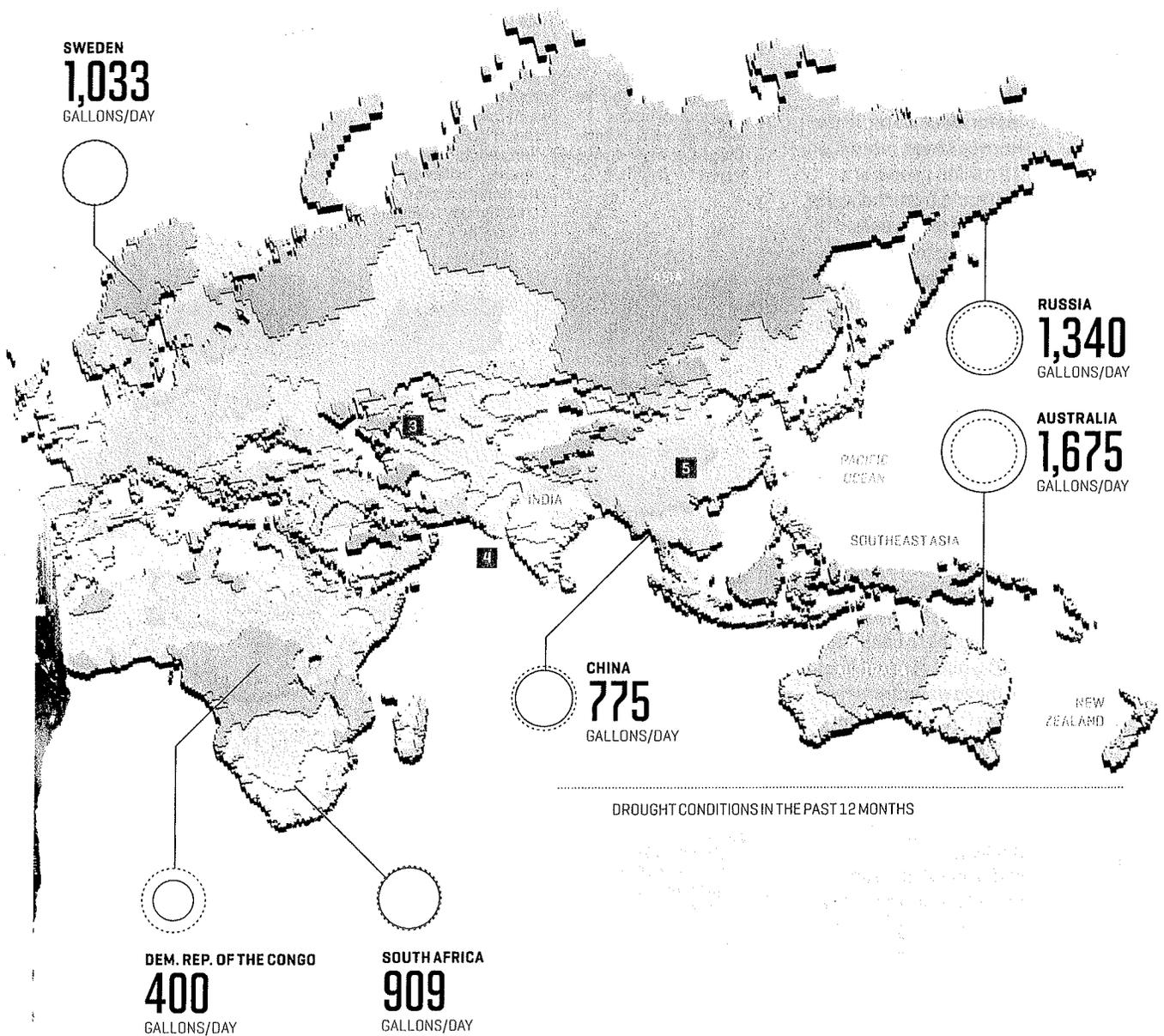
Hong Kong \$0.17

Moscow \$0.24

Las Vegas \$0.32

LOW WATER STRESS MEDIUM WATER STRESS HIGH WATER STRESS

AGRICULTURAL, INDUSTRIAL, AND DOMESTIC DAILY WATER CONSUMPTION, PER CAPITA
WORLD AVERAGE (1,033 GALLONS)



DROUGHT CONDITIONS IN THE PAST 12 MONTHS

New York \$0.39 Tokyo \$0.46 Los Angeles \$0.50 Boston \$0.52 Phoenix

SOURCES: WATER FOOTPRINT NETWORK, PACIFIC INSTITUTE, VEOLIA WATER AMERICAS, WATER TECHNOLOGY, DRINKING-WATER.ORG, POSEIDON RESOURCES, WORLD BANK, GLOBAL WATER INTELLIGENCE, UCL GLOBAL DROUGHT MONITOR, THE 2030 WATER RESOURCES GROUP, UN POPULATION DIVISION, CENTER FOR ENVIRONMENTAL SYSTEMS RESEARCH (CESR), WORLD WATER COUNCIL, UN OFFICE FOR THE COORDINATION OF HUMANITARIAN AFFAIRS, CITI WATER SECTOR HANDBOOK



After the town's water system broke down, a young girl collects well water in Aralsk, Kazakhstan.

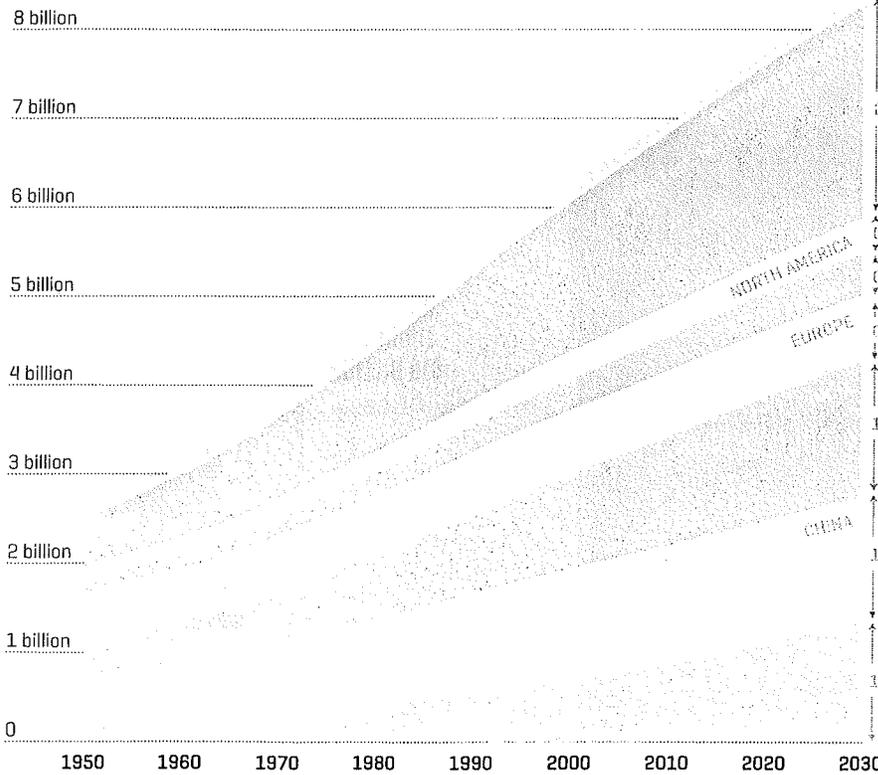


QUENCHING THE THIRST OF A GROWING WORLD

The typical American uses 150 gallons of water a day, vs. 23 gallons for someone in China. Consider the impact on the water supply when more people in developing nations begin living Western lifestyles. In India alone, water usage is expected to rise by nearly 100% over the next 20 years. Expanding populations will also swell demand for agricultural water some 42% by 2030. The hope? Grow more with less water by applying genetically modified seeds, drip irrigation, and other technologies.

PROJECTED POPULATION GROWTH

PROJECTED WORLD TOTAL POPULATION: 8.3 billion in 2030



INCREASE IN ANNUAL WATER DEMAND 2005-30

NORTH AMERICA

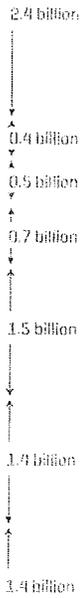
SOUTH AMERICA

EUROPE

INDIA

CHINA

SUB-SAHARAN AFRICA



CHLOE DEWE MATHEWS—PANOS PICTURES

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London \$0.73

Oslo \$1.35

Paris \$1.48

Copenhagen \$3.03

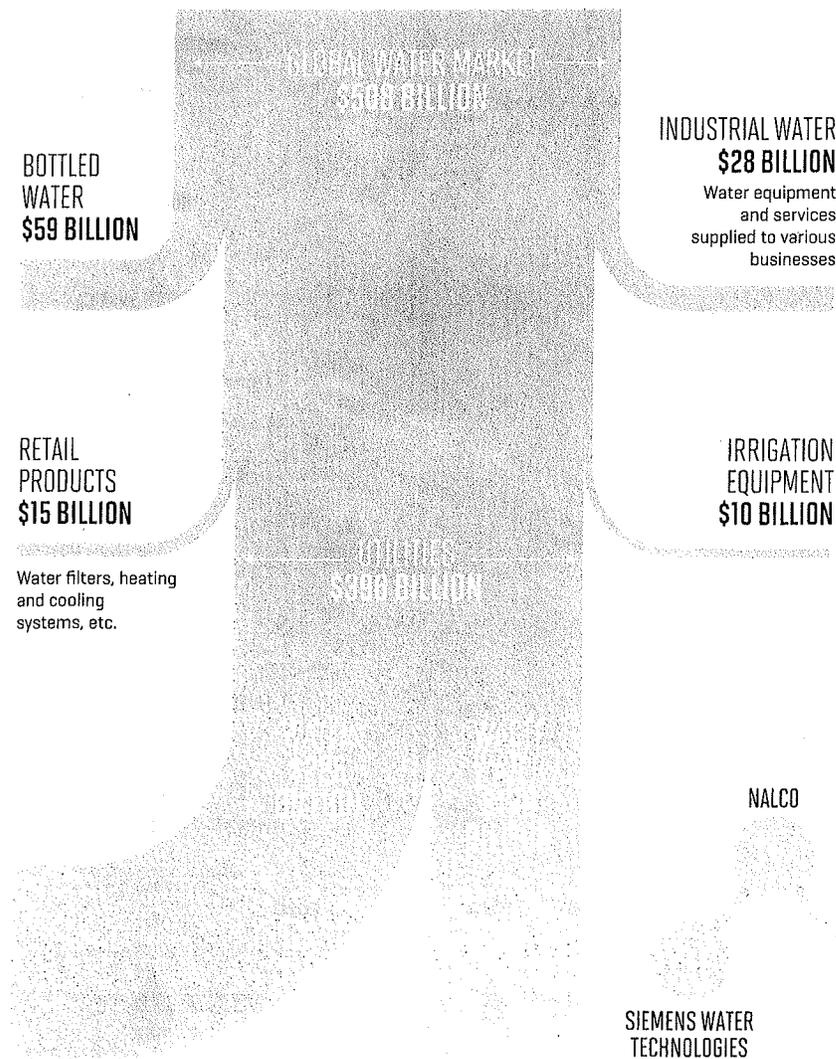


IS WATER THE GOLD OF THE 21ST CENTURY?

For most of history, water was considered a basic human right—wherever it was plentiful, that is. When drought hit or populations outstripped the local supply, water became a valuable resource that was fought over or exploited, as the movie *Chinatown* made all too clear. A growing number of corporations now are betting that those who can save water, clean it, and manage it will prosper. The global water market

had revenues of \$508 billion last year and is growing at 6.4%. Veolia and Suez, which have been in the water business for over 100 years, dominate the market for providing services for municipal water systems. More recently, companies such as ITT [water treatment tech] and Siemens [services and water-purification membranes] have entered the sector. Here's how the market breaks down.

TOTAL WATER MARKET, 2010



MAJOR INTERNATIONAL PLAYERS (RANKED BY WATER-BASED REVENUES)

